



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:

OSB1999-0055

August 6, 1999

Gary Larsen
Forest Supervisor
Mt. Hood National Forest
16400 Champion Way
Sandy, Oregon 97055

Van Manning
District Manager
Salem District Bureau of Land Management
1717 Fabry Road SE
Salem, Oregon 97306

Re: ESA Section 7 Formal Consultation on the Proposed Break, Bazooka, Gum, and Sugarloaf Timber Sales on the Mt. Hood National Forest and McLafferty and Pig's Puzzle Timber Sales on the Salem Bureau of Land Management Lands

Dear Mr. Larsen and Mr. Manning:

This letter represents the National Marine Fisheries Service's (NMFS) Biological Opinion, pursuant to Section 7(a)(2) of the Endangered Species Act (ESA), that the effects of the proposed Break, Bazooka, Gum, Sugarloaf, McLafferty, and Pig's Puzzle Timber Sales, together with cumulative effects and the effects of the environmental baseline, are not likely to jeopardize the continued existence of certain listed, proposed and candidate fish species. This letter also authorizes incidental take associated with the subject sales. In making these determinations NMFS applies the methodology described in the NMFS document entitled "Application of Endangered Species Act Standards to Lower Columbia River Steelhead," October, 1997 (Attachment 2 of NMFS 1998).

Background

The Land and Resource Management Plans for the Mt. Hood and Gifford Pinchot National Forests, the Resource Management Plan for the Salem Bureau of Land Management (BLM) District, and the Columbia River Scenic Gorge Area Plan were subjects of a formal ESA consultation that was concluded March 19, 1998 when NMFS issued its Biological Opinion concerning the effects of the implementation of these plans on Lower Columbia River (LCR) steelhead. That Opinion provides an important basis for the conclusions of this letter (i.e. it explained how consultations are conducted and providing an overview of the action agencies' management plans). Hereafter that opinion is referred to as the LRMP Opinion (NMFS 1998).



The specific listed and proposed Evolutionarily Significant Units¹ (ESU) and candidate species considered in this Biological/Conference Opinion are:

ESUs Listed as Threatened:

- Lower Columbia River (LCR) steelhead (*Oncorhynchus mykiss*)
- Lower Columbia River (LCR) chinook salmon (*Oncorhynchus tshawytscha*)
- Upper Willamette River (UWR) chinook salmon (*Oncorhynchus tshawytscha*)
- Columbia River (CR) chum salmon (*Oncorhynchus keta*)

ESU Proposed as Threatened:

- Southwestern Washington/Columbia River (SW/CR) sea-run cutthroat trout (*O. clarki clarki*)

ESU Candidate Species:

- Southwest Washington/Lower Columbia River (SW/LCR) coho salmon (*Oncorhynchus kisutch*)

A Biological Assessment (BA) and Aquatic Conservation Strategy Consistency Findings for the Break Timber Sale were prepared in July 1998. An amendment of the BA, which provided checklists for documenting the environmental baseline and effects of proposed actions on relevant indicators for 5th-field watersheds², was concluded in September 1998. BAs were prepared by the action agencies in February 1998 for Bazooka and Gum Timber Sales, January 1998 for Sugarloaf, September 1997 for McLafferty, and May 1998 for Pig's Puzzle. All of these were amended in July 1998 to include checklists for documenting the environmental baseline and effects of proposed actions on relevant indicators for 5th-field watersheds. These documents were analyzed by the Level 1 team for the Mt. Hood National Forest (MHNf), which includes a NMFS representative, in a series of meetings and phone calls conducted in late 1997, 1998, and early 1999.

The BAs provide information on the current status of the environmental baseline, an assessment of the effects determination for these actions at the 6th field watershed level, and an assessment of overall watershed-level effects of these actions combined with other MHNf and BLM activities at the 5th field

¹ For the purposes of conservation under the Endangered Species Act, an Evolutionarily Significant Unit (ESU) is a distinct population segment that is substantially reproductively isolated from other conspecific population units and represents an important component in the evolutionary legacy of the species (Waples, 1991).

² Stream drainages can be arranged in nested hierarchies, in which a large drainage is composed of smaller drainages. The USFS and BLM use a system in which these drainages are numbered in a computer database for analytical purposes. The number identifier of a particular drainage in this database is called its hydrologic unit code, or HUC. This HUC increases with decreasing drainage area, thus a 4th field HUC (such as the Clackamas River basin) is composed of several 5th field HUCs (such as Eagle Creek, Fish Creek, etc., hereafter referred to as a watershed), and so on. The Northwest Forest Plan determined that the scale of watershed analyses should be 20 to 200 square miles, which often corresponds to a 5th field watershed. Fifth-field watersheds are hierarchal subdivisions of western Oregon river subbasins that were cooperatively delineated by the USFS and BLM to facilitate watershed analysis. Fifth-field watersheds (approximately 20-200 square miles in size) provide a proper context for assessing many processes and features affecting ecosystem function. In this consultation, 4th field basins are referred to Section 7 watersheds in the BA.

watershed scale. In preparation of the BAs, the MHN and BLM utilized, among other resources, the applicable watershed analysis. This information supported the Level 1 team's concurrence with the action agency's determination that each proposed action is consistent with the Aquatic Conservation Strategy (ACS), as the proposed actions should maintain or improve the existing environmental baseline conditions. Any short-term adverse effects on listed, proposed, or candidate species are expected to be limited in time, duration and/or effect and will not likely hinder attainment of the ACS objectives.

The BAs describe in detail the proposed timber sales and the potential effects on LCR steelhead. The Level 1 team agreed that the timber sales "may affect, and are likely to adversely affect" (LAA) LCR steelhead. The Level 1 team also agreed that since the effects determination at the watershed scale are the same for LCR steelhead as for other listed, proposed, or candidate anadromous fish species (since steelhead distribution is equal to or greater than the other species and all the species have similar habitat requirements and life history characteristics), the timber sales are also LAA for LCR chinook, UWR chinook, CR chum, SW/CR cutthroat trout, and LCR/SW coho.

Proposed Actions

Break

The Break Timber Sale is located in two fifth-field watersheds, the Upper Clackamas River and the Lower Clackamas River. Parts of these watersheds are designated as Tier 1 Key Watersheds (the Tier 1 areas are threads along the mainstem of the river). Watershed analyses were completed for both these watersheds. The sale will treat approximately 108 acres of "matrix" land allocation and 59 acres of Riparian Reserves by commercial thinning. The existing plantations are approximately 30 years old (with full canopy closure) and thinning would leave stands with approximately 40 percent canopy closure. The intent of thinning the Riparian Reserves is to move them towards the desired future condition by creating multi-aged, multi-layered stands where large trees are available for recruitment of large woody debris (LWD). LWD is an important habitat element of the anadromous fish species. The watershed analyses recommended thinning in Riparian Reserves to accelerate late seral conditions which would increase the LWD recruitment potential (USDA-FS 1995 & USDA-FS and USDI-BLM 1996). Therefore, Riparian Reserve thinning is consistent with TM-1 standard and guideline which allows timber harvest in Riparian Reserves to "acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives" (USDA-FS and USDI BLM 1994). Harvest within the Riparian Reserves will be outside no-cut buffers, 33 feet beyond the break in slope of the inner gorge of the stream channel. All but one unit will be yarded with suspension cable systems. One unit will be tractor yarded. This unit is on slopes less than 20 percent. The closest proposed logging area is ½ mile upstream from the range of steelhead distribution.

Some of the timber sale units are located on an active earthflow. The BA indicated that deferring thinning on earthflows would lead to a reduction in stand health and vigor, with long-term negative consequences for earthflow stability.

The Decision Notice of the proposed project acknowledged the short-term risk (approximately 5 years for thinned areas to reach canopy closure that they would have otherwise developed) to earthflow stability by the thinning, but stated that the enhanced growth and vigor of the stands will have a positive, long-term (>5 years) effect on the earthflow stability.

There will be no permanent road construction associated with this project. There will be up to ½ mile of temporary road construction/reconstruction which will not cross streams and will be obliterated with project completion.

Bazooka and Gum Timber Sales

Bazooka and Gum Timber Sales are located within the Upper Clackamas River Watershed. The principal streams in the sale areas are Last Creek (tributary to Pinhead Creek), Dyke Creek (tributary to Last Creek), Poop Creek (tributary to Last Creek) and Pinhead Creek (tributary to the Clackamas River). The nearest timber sale unit to steelhead habitat is Bazooka unit 15, which is approximately 0.4 mile up Poop Creek from the upper limit of steelhead distribution and about 900 - 1000 feet upslope. The proposed project consists of regeneration harvest, intermediate harvest, commercial thinning, and a small amount of salvage on a total of approximately 479 acres. Regeneration harvest would remove approximately 75% of the stand, leaving the 15% retention required by the Northwest Forest Plan and an additional 10% for various other reasons, including shelterwood trees, snag recruitment, and visual amelioration. Intermediate harvest would remove 10-20% of the stand from smaller trees. Salvage would remove old material that would probably be used for firewood or fiber. All of the sale units are in the Matrix land designation. A total of 2.4 miles of road will be obliterated as part of the project. Above anadromous fish habitat, several culverts will be removed and others replaced to improve resident fish passage. Logs and/or boulders will be brought in with a helicopter and placed in the stream above anadromous fish habitat with a spider backhoe for resident fish habitat enhancement. Riparian areas which are 1 to 2 miles above anadromous fish distribution in the headwaters of Pinhead Creek that have been impacted by past logging practices will be planted with riparian tree species such as willow, cottonwood, and cedar.

Sugarloaf Resource Management Project

The Sugarloaf Resource Management Project is located in “matrix” land allocation in the Upper Sandy River watershed which is not a Key Watershed under the Northwest Forest Plan. It is within the subwatersheds of the Clear Fork and Clear Creek of the Sandy River. Both of these subwatersheds are known to support steelhead trout populations. Three units totaling 11 acres will have regeneration prescriptions and will be skyline yarded. Four timber sales units totalling 66 acres have thinning prescriptions and would be individually tree marked. Of these, three will be helicopter yarded and one would be skyline yarded. Total yield from the 77 acres is approximately 1.03 mmbf.

There will be about 12.9 miles of road maintenance, five sites of road reconstruction, a wing installation at a culvert to prevent erosion, a culvert replacement, and a leveling/clearing for a helispot on Road 1820. Approximately 300 feet of temporary spur road will be constructed. There will be no timber harvest nor new road construction sites within the Riparian Reserves.

McLafferty Creek Density Management Project

The McLafferty Creek Density Management Project is located in the Scappoose Creek Watershed which is not a Key Watershed under the Northwest Forest Plan. The project will consist of density management thinning on up to approximately 190 acres of 45 to 55- year-old Douglas-fir forest to maintain and promote rapid tree growth while encouraging the development of some late-successional forest characteristics. The treatment areas is within Matrix/Connectivity and Riparian Reserve land allocations. Thinning in well-stocked and over-stocked mid-aged riparian areas was recommended in the watershed analysis (USDI-BLM 1996). About 60% of the stand will be thinned to an average residual density of 70 trees per acre with generally uniform spacing and about 40% will be thinned with a more variable spacing retaining 90 trees per acre. Approximately 150 acres will be harvested by a cable system and 40 acres by a ground-based system. Six to ten small areas outside of Riparian Reserves that are infested with root disease will be patch cut and underplanted with disease-resistant species. Approximately 30 acres will be treated within the Riparian Reserves outside of the “no-cut” buffers (roughly 100 feet or 50 feet from the stream or to the top of the inner gorge, whichever is greater, along perennial streams and intermittent streams (respectively)). Thinning in the riparian areas with accelerate the growth of the remaining trees and, as a result, increase the recruitment potential of LWD which is an important habitat element of anadromous fish. Therefore, Riparian Reserve thinning is consistent with TM-1 standard and guideline which allows timber harvest in Riparian Reserves to “acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives”(USDA-FS and USDI BLM 1994). About ½ mile of road outside of Riparian Reserves will be constructed and decommissioned at the end of the project.

Pig's Puzzle

The Pig's Puzzle Timber Sale Project is located in the Scappoose Creek Watershed which is not a Key Watershed under the Northwest Forest Plan. The project will consist of regeneration harvest of approximately 183 acres of Matrix lands, density management of 198 acres of Matrix, and 50 acres of density management in riparian reserves. The riparian areas proposed for treatment are densely stocked stands in which progress toward late-seral forest conditions has slowed. An objective of the project is to maintain and promote rapid tree growth while encouraging the development of some late-successional forest characteristics. Thinning in the riparian areas with accelerate the growth of the remaining trees and, as a result, increase the recruitment potential of LWD which is an important habitat element of anadromous fish. Therefore, Riparian Reserve thinning is consistent with TM-1 standard and guideline which allows timber harvest in Riparian Reserves to “acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives” (USDA-FS and USDI

BLM 1994). All the units will be cable yarded with the exception of two non-riparian units which would have less than 58 acres of ground yarding. Approximately 1.7 miles of road will be constructed, 1.6 miles of existing road will be rocked, and 1.7 miles of existing natural or rocked roads will be improved or reconstructed. Some old roads as well as the new natural surface roads created for hauling purposes will be subsoiled and grass seeded (Red Alder will be planted if determined appropriate). Approximately 50,000 board feet of timber (possibly with attached root wads) will be allocated for instream habitat improvement. Entities other than the BLM, e.g. the Oregon Department of Fish and Wildlife or the Watershed Council, may be utilizing this wood in the future. This consultation does not cover the instream placement of these logs since the placement plans and locations have not yet been developed.

Biological Information and Critical Habitat

A list of all the listed and proposed species and their associated critical habitat information that are covered in this consultation are provided in Table 1. References for additional background on biological information and historical population trends are also provided. A summary can be found in our June 3, 1999, letter regarding “ESA Section 7 Consultation for Programmatic Actions in the U.S. Forest Service - Gifford Pinchot National Forest, Mt. Hood National Forest, Columbia River Gorge National Scenic Area, and Salem District Bureau of Land Management that are Likely to Adversely Affect Lower Columbia River steelhead, Lower Columbia River chinook salmon, Upper Willamette River chinook salmon, Columbia River chum salmon, Southwestern Washington/Columbia River cutthroat trout, and Southwest Washington/Lower Columbia River coho salmon.”

Table 1. References for additional background on listing status, biological information, and critical habitat elements for the listed and proposed species addressed in this consultation.

Species	Listing Status		Critical habitat	Biological Information, Historical Population Trends
	Proposed Rule	Final Rule		
Upper Willamette River Chinook Salmon		March 24, 1999; 64 FR 14308	March 9, 1998; 63 FR 11482 (PROPOSED RULE)	Myers <i>et al.</i> 1998; Healey 1991
Lower Columbia River Chinook Salmon		March 24, 1999; 64 FR 14308	March 9, 1998; 63 FR 11482 (PROPOSED RULE)	Myers <i>et al.</i> 1998; Healey 1991
Lower Columbia River Steelhead		March 19, 1998; 63 FR 13347	February 5, 1999; 64 FR 5740 (PROPOSED RULE)	Busby <i>et al.</i> 1995; Busby <i>et al.</i> 1996
Columbia River Chum Salmon		March 25, 1999; 64 FR 14308	March 10, 1998; 63 FR 11774 (PROPOSED RULE)	Johnson <i>et al.</i> 1997; Salo 1991
S.W. Washington/Lower Columbia River Coastal Cutthroat Trout	April 5, 1999; 64 FR 16397		N/A	Johnson <i>et al.</i> 1999; Trotter 1989

Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by its implementing regulations (50 CFR 402). When the NMFS issues a conference or biological opinion, it uses the best scientific and commercial data available to separately determine whether a proposed Federal action is likely to: (1) jeopardize the continued existence of a proposed, listed, or candidate species, and/or (2) destroy or adversely modify a proposed or listed species' critical habitat. NMFS discusses the analysis necessary for application of these standards in the particular contexts of the Pacific salmonids in Attachment 2 (Application of Endangered Species Act Standards to Lower Columbia River Steelhead) to the March 19, 1998, LRMP/RMP Opinion. This analysis involves the following steps: (A) define the biological requirements of the species; (B) evaluate the environmental baseline relative to the species' current status; (C) determine the effects of the proposed or continuing action on the species; (D) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline

and any cumulative effects, and considering measures for survival and recovery specific to other life stages; and (E) identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the species.

A. Biological Requirements

The first step in the method the NMFS uses in applying the ESA standards of Section 7(a)(2) to Pacific salmonids is to define the species' biological requirements that are most relevant to each consultation. The NMFS finds that these biological requirements are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for the survival and recovery of the listed species. Individual environmental factors include water quality, habitat access, physical habitat elements, river channel condition, and hydrology. These are measurable variables, with properly functioning values estimated using the best available information as those necessary for sufficient prespawning survival and distribution, spawning success, egg-to-smolt survival, smolt emigration survival and timing, and smolt condition to allow the long-term survival of the species. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are necessary for the survival and recovery of these species. This information is discussed further in Attachment 1 (Lower Columbia River Steelhead - Biological Requirements and Status under the 1996 Environmental Baseline) of the March 19, 1998, Biological Opinion on implementation of Land and Resource Management Plans (USFS) and Resource Management Plan (BLM).

B. Environmental Baseline

The environmental baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat and ecosystem within the action area (NMFS and USFWS 1996). The action area covered by this Opinion includes the Upper Clackamas River, Lower Clackamas River, Upper Sandy River, and Scappoose Creek.

Environmental baseline conditions in within the MHNH and BLM lands covered in this Opinion are discussed on pages 19-25 of NMFS (1999). Additionally, the project effect checklists in the BAs document the information sources used to assess the environmental baseline conditions at the 5th field watershed level. The BAs also provides a detailed narrative description of the current status of the environmental baseline for each habitat indicator in the checklist.

The general environmental baseline affecting Pacific salmonids has been described in various documents. The report of the Forest Ecosystem Management Assessment Team (FEMAT 1993) provides a regional assessment of aquatic ecosystems within the range of the northern spotted owl (including the range of LCR steelhead), particularly with regard to land management actions. Chapter V of FEMAT (1993) focuses on current aquatic habitat conditions and the effects of degraded habitat on fish populations. Page V-2 notes that "[a]quatic ecosystems in the range of the northern spotted owl

exhibit signs of degradation and ecological stress." Many factors such as dams, overharvest, excessive predation, disease, artificial propagation, poor ocean conditions, and the destruction and alteration of habitat have been implicated in the decline of Pacific salmonids. Aquatic habitat degradation has resulted from a wide range of past land- and water-use practices including timber harvest, road construction, mining, grazing, agriculture, construction and operation of dams, irrigation, and flood control (Busby *et al.* 1996; Spence *et al.* 1996). These activities have occurred on United States Forest Service (USFS) and BLM lands within the LCR steelhead ESU.

In general, these activities have: (1) reduced connectivity between streams, riparian areas, floodplains, and uplands; (2) significantly increased sediment yields, leading to pool filling and reduction in spawning and rearing habitat; (3) reduced or eliminated instream replenishment of LWD which serves to trap sediment, stabilize stream banks, form pools, and provide cover; (4) reduced or eliminated vegetative canopy that minimizes stream temperature fluctuations; (5) reduced stream complexity by causing streams to become straighter, wider, and shallower which reduces spawning and rearing habitat and increases temperature fluctuations; (6) altered peak flow volume and timing; (7) altered water tables and base flow; and (8) contributed to degraded water quality by adding toxicants through mining and pest control (FEMAT 1993; Rhodes *et al.* 1994; Spence *et al.* 1996).

Analysis of Effects

Individual, and groups of actions (programs or projects) implemented in accordance with management direction in the land and resource management plans and resource management plans are expected to affect LCR steelhead in a variety of ways. Some may result in adverse effects to salmonid habitat, while others are expected to maintain or restore habitat conditions. Because all actions will be designed and mitigated in accordance with the Aquatic Conservation Strategy objectives, land allocations, and standards and guidelines, any associated adverse effects (e.g., increased habitat sedimentation) are expected to be generally minor in magnitude and short-lived in duration. Chapter V of FEMAT (1993) discusses generally the potential adverse effects of these actions on fish habitat and populations.

The site- and watershed-scale environmental baseline and expected effects associated with individual or groups of projects were evaluated via use of the procedures outlined in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996; Attachment 3 [Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale] in the March 19, 1998 LRMP/RMP Opinion). These evaluation methods were designed to ensure that Level 1 teams can efficiently provide adequate information in BAs to evaluate effects of actions subject to ESA Section 7 conferences and consultations. Effects of actions are expressed in terms of the expected effect (i.e., restore, maintain, or degrade proper functioning) on each of 17 aquatic habitat factors in the project area (site and watershed scales), as described in the "Checklist for documenting environmental baseline and effects of the action" (Checklist) completed for each action.

The evaluation procedures described in NMFS (1996) are based on a "Matrix of Pathways and Indicators" (Matrix), a holistic method for characterizing environmental baseline conditions and predicting the effects of human activities on those baseline conditions. The Matrix provides generalized ranges of functional values (i.e., properly functioning, at risk, and not properly functioning) for aquatic, riparian, and watershed parameters. The NMFS acknowledges that generalized values provided in the Matrix may not be appropriate for all watersheds within the range of Pacific salmonids or even within the range of a single ESU. Therefore, NMFS encourages development of more biologically-appropriate matrices (referred to as "modified" matrices) in specific physiographic areas. The NMFS, in conjunction with the USFS and the BLM, is in the process of appropriately modifying the Matrix for watersheds that support LCR steelhead. Meanwhile, the generalized values are being utilized for ESA purposes.

The effects of the subject timber sales on LCR steelhead were evaluated using the methodology described in NMFS (1996). Individual checklists were prepared for each sub-watershed to assess the potential effects of the action at the project site. These effects were combined with those of other on-going or proposed MHN and BLM actions in the appropriate 5th field watershed to assess overall watershed effects on anadromous salmonids.

Additionally, a detailed discussion of the potential effects of timber harvest and associated activities on salmonid habitat is presented in the NMFS document entitled "Potential Effects of Timber Harvest and Associated Activities on Salmonid Habitat and Measures to Minimize Those Effects" (hereinafter referred to as "NMFS 1997"). A copy of the document is attached to this letter and is incorporated herein by reference. NMFS has considered the applicability of this analysis to the timber sales. The NMFS is not aware of any other special characteristics of these particular sales that would cause greater or materially different effects on the subject salmonid species and their habitat than is discussed in these references.

Break

The primary potential adverse effect on anadromous habitat associated with the Break Timber Sale is the small chance of accelerating movement of an earthflow (in a non-riparian area). Even though the earthflow is outside of the riparian areas, soil in this area has the potential to eventually travel into the riparian areas and streams. The Level 1 team believes this risk to be short-term (within five years) as the existing condition of canopy closure will return within five years after thinning. Although this sale has the small potential to affect an earthflow, it is believed that this is outweighed by the benefits that will be derived from the thinnings, such as accelerated growth and resulting increase in hydrologic stability. This project is not expected to cause any long-term degradations of habitat conditions at either a project or watershed scale, nor will it result in degradation of habitat indicators. The thinning is expected to create multi-layer, multi-aged stands, and accelerate growth of the trees and will not hinder attainment of the ACS.

Overall watershed effects for all on-going and proposed FS and BLM actions were assessed at the 5th field watershed level. The effects of this sale were combined with the other projects within the same watershed that have been reviewed by the Level 1 team. In the Lower Clackamas, these other projects were Artful Dodger, Winslow, Morgan, Yoda, Sand, Upper, and Guard timber sales, the Fish Creek Restoration Project, and ERFO 067318 project. In the Upper Clackamas, the other projects were Bay, Lemiti, John II, Ringo II, Upper, Sorrel, Pardner, Bazooka, Gum, Bonanza, Bear Cub, and Tarzan timber sales, Clackamas Restoration project, and the Upper Clackamas Road 46 Wetland project. An effects checklist and discussion of the combined effects of these actions is included in the September 1998 update of the BA Amendment. The assessment concluded that none of the indicators would be degraded at the 5th field watershed scale.

Bazooka and Gum Timber Sales

It is not anticipated that logging, yarding, or other timber harvest associated activities will negatively affect fish habitat or water quality where steelhead are found since there are no timber harvest in Riparian Reserves and the activities are 0.4 miles or greater away from anadromous fish habitat. There are potential short-term impacts from culvert removal/replacement projects and instream habitat projects which are immediately upstream from the upper limits of steelhead distribution on both Pinhead Creek and Last Creek. The culvert projects will reduce risk from sedimentation in future peak flows and the fish habitat projects will provide cover and improve other aquatic ecosystem functions. Despite project design specifications that will substantially mitigate for negative impacts of culvert replacements, such as operating during periods after trout and salmon fry have emerged from gravel, working during low flow and dry conditions, bypassing flow through a pipe until in-channel work is completed, and revegetation of exposed soil surfaces, some sediment is likely to enter the channel. Log and boulder placements will also generate turbidity. This short-term degrade in sediment is only anticipated at the project level.

Overall watershed effects for all on-going and proposed FS and BLM actions were assessed at the 5th field watershed level. The effects of this sale were combined with the other projects within the same watershed that have been reviewed by the Level 1 team. In the Upper Clackamas, the other projects were Bay, Lemiti, John II, Ringo II, Upper, Sorrel, Pardner, Bazooka, Break, Bear Cub, and Tarzan timber sales, Clackamas Restoration project, and the Upper Clackamas Road 46 Wetland project. An effects checklist and discussion of the combined effects of these actions is included in the September 1998 update of the BA Amendment. The assessment concluded that none of the indicators would be degraded at the 5th field watershed scale.

Sugarloaf Resource Management Project

The project will maintain all relevant pathways and indicators except for one (sediment) and that will be a short-term degrade at the site-specific/project level. This would not be a result of timber harvest, but a result of work on culverts which will improve water quality and reduce risks of catastrophic sediment introductions during storm events.

Overall watershed effects for all on-going and proposed FS and BLM actions were assessed at the 5th field watershed level. The effects of this sale were combined with the other projects within the same watershed that have been reviewed by the Level 1 team. In the Upper Sandy, the other projects were ZZ Cut/Fill Stability, BPA ROW Vegetation Management, Timber Stand Improvement, Summer Home Disturbance, Still Creek Road Culverts, Still Creek Road Replacement, ZigZag Watershed Drainage, ZigZag River and Tributary Restoration, and ZigZag Summer Homes 98. An effects checklist and discussion of the combined effects of these actions is included in the September 1998 update of the BA Amendment. The assessment concluded that none of the indicators would be degraded at the 5th field watershed scale.

McLafferty Creek Density Management Project

The adverse impacts from the proposed project are related to potential short-term increases in sediment at the site specific/project level. The proposed road use and construction has the potential to increase turbidity and sediment. It is anticipated that mitigation such as working during low streamflow periods, and harvest during these same dry periods will limit the effects of sediment and turbidity. There may be short-term impacts, but long-term changes in baseline indicators are not expected from this project.

Overall watershed effects for all on-going and proposed FS and BLM actions were assessed at the 5th field watershed level. The effects of this sale were combined with the other projects within the same watershed that have been reviewed by the Level 1 team. In Scappoose Creek, the other project was Pig's Puzzle. An effects checklist and discussion of the combined effects of these actions is included in the September 1998 update of the BA Amendment. The assessment concluded that none of the indicators would be degraded at the 5th field watershed scale.

Pig's Puzzle

There is a chance small amounts of sediment could enter the streams during the road building or hauling portions of this action at the site-specific/project level.

Overall watershed effects for all on-going and proposed FS and BLM actions were assessed at the 5th field watershed level. The effects of this sale were combined with the other projects within the same watershed that have been reviewed by the Level 1 team. In Scappoose Creek, the other project was

McLafferty. An effects checklist and discussion of the combined effects of these actions is included in the September 1998 update of the BA Amendment. The assessment concluded that none of the indicators would be degraded at the 5th field watershed scale.

B. Cumulative Effects

Cumulative effects are defined as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation" (50 CFR § 402.02). For the purposes of this consultation, the action area includes those portions of the administrative units within the Upper Clackamas River, Lower Clackamas River, Upper Sandy River, and Scappoose Creek and river reaches downstream of the administrative unit boundaries that may be affected by Federal land management activities.

Within the LCR steelhead ESU, Federal lands comprise approximately 47 percent of the area. A substantial portion of spawning and rearing habitat for LCR steelhead occurs on USFS and BLM lands. Gradual improvements in habitat conditions for salmonids are expected on these lands as a result of Northwest Forest Plan implementation.

The dominant land-use activities on non-Federal lands within the Clackamas River watershed (approximately 26%) are forestry and agriculture (METRO 1997). A small, but increasing, proportion of this non-Federal land is being used for urban growth. Historically, agriculture, livestock grazing, forestry and other activities on non-Federal land have contributed substantially to temperature and sediment problems in the ESU. Conditions on, and activities within, non-Federal riparian areas along stream reaches downstream of the USFS and BLM land presently influence river temperatures and contribute sediment to the habitat of LCR steelhead.

Significant improvements in LCR steelhead production outside of USFS and BLM land is unlikely without changes in forestry, agricultural, and other practices occurring within non-Federal riparian areas. NMFS is aware that significant efforts, such as the Oregon Plan for Salmon and Watersheds and Washington's Wild Salmonid Policy (extinction is not an option), have been developed to improve conservation of at-risk salmonid populations (including LCR steelhead) on non-Federal land. NMFS is also aware that Oregon is working on a steelhead restoration plan and Washington is developing the Lower Columbia Steelhead Conservation Initiative. NMFS is not aware of any general changes to existing State and private activities within the action area that would cause greater impacts than presently occur to any of the salmonid species considered in this consultation.

Until improvements in non-Federal land management practices are actually implemented, the NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Now that the LCR steelhead ESU is listed under the ESA, the NMFS assumes that non-Federal land owners in those areas will also take steps to curtail or avoid land management practices that would result in the unauthorized take of those species. Such actions may be prohibited by Section 9 of the ESA, and

subject to the incidental take permitting process under Section 10 of the ESA. Future Federal actions, including the ongoing operation of hydropower projects, hatcheries, fisheries, and land management activities will be reviewed through separate Section 7 processes. In addition, non-Federal actions that have received authorization for take under Section 10 of the ESA would be considered in the environmental baseline for future Section 7 consultations.

Conclusion

The MHNF and BLM applied the NMFS' evaluation methodology (NMFS 1996) to the timber sales. The Break timber sale will maintain all of the essential aquatic habitat elements at the project scale and will move Riparian Reserves toward restoration. Bazooka, Gum, Sugarloaf, McLafferty, and Pig's Puzzle will maintain essential habitat elements. Although there is a possibility of releasing small amounts of sediment, it is not expected to degrade the watersheds. When added to the environmental baseline, these actions should maintain or restore the quality, distribution and abundance of habitat (prespawning survival, egg-to-smolt survival, and upstream/downstream migration survival rates) at the watershed scale.

Therefore, NMFS concludes that, when added to the environmental baseline and cumulative effects occurring in the relevant action areas, Break, Bazooka, Gum, Sugarloaf, McLafferty, and Pig's Puzzle timber sales are not likely to jeopardize the continued existence of LCR steelhead, LCR chinook salmon, UWR chinook salmon, CR chum salmon, SW/CR cutthroat trout, and SW/LCR coho salmon, nor will they destroy or adversely modify the proposed critical habitat for LCR steelhead, LCR chinook salmon, UWR chinook salmon, or CR chum salmon. In reaching this conclusion NMFS has utilized the best scientific and commercial data available as documented herein and by the BA and documents incorporated by reference.

Incidental Take Statement

Sections 4(d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement (ITS) specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures. An ITS does not apply to candidate or proposed species. While effects on SW/LCR coho salmon and SW/CR sea-run cutthroat trout were considered in this Opinion, the reasonable and prudent measures and terms and conditions set forth in this ITS do not apply to SW/LCR coho salmon and SW/CR sea-run cutthroat trout. Should either of these species become listed in the future, this ITS would become effective for these species upon adoption of this conference opinion as a biological opinion.

The measures described below are non-discretionary. They must be implemented by the action agencies so that they become binding conditions necessary in order for the exemption in Section 7(o)(2) to apply. The administrative unit (USFS and BLM) has a continuing duty to regulate the activity covered in this incidental take statement. If the administrative unit (1) fails to adhere to the terms and conditions of the incidental take statement, and/or (2) fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of Section 7(o)(2) may lapse.

Amount or Extent of the Take

Notwithstanding the NMFS' conclusion that the subject timber sales are not expected to jeopardize the continued existence of LCR steelhead, LCR chinook salmon, UWR chinook salmon, or CR chum salmon, there may be short-term impacts and NMFS anticipates that there could more than a negligible likelihood of incidental take of these species from some of the actions. Adverse effects of management actions such as these are largely unquantifiable in the short-term, and may not be measurable as long-term effects on the species' habitat or population levels. In this case, the small level of risk associated with short-term releases of sediment is what is being considered incidental take. The best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves as a result of this small risk. In instances such as these, the NMFS designates the expected level of take as "unquantifiable."

Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of incidental take of the species covered by this Opinion.

1. The USFS and BLM shall update the environmental baseline files as directed in the incidental take statement of the LRMP Opinion (NMFS 1998).
2. In future planning of timber sales, the USFS and BLM shall avoid or minimize the adverse effects of road construction on salmonid habitat components, particularly water quality, flow and hydrology, and channel condition and dynamics (see March 18, 1997, Biological Opinion on Implementation of Land

and Resource Management Plans (LRMP) and Resource Management Plans (RMP) of the Rogue River, Siskiyou, Siuslaw, Umpqua, and Winema National Forests and the Coos Bay, Eugene, Medford, Roseburg, and Salem BLM districts.)

Terms and Conditions

To minimize the likelihood of incidental take of listed salmonid species which may result from proposed future actions, the USFS and BLM shall implement the following terms and conditions. The individual projects covered by this Opinion must also comply with the terms and conditions of all required state, federal, and local permits.

1. To ensure that the environmental baseline is continually updated to include proposed actions once consultation is concluded, the USFS and BLM shall maintain a file of completed project and watershed Checklists and other related environmental documentation for each subject watershed.
2. To avoid or minimize incidental take associated with the adverse effects of road construction on water quality, flow and hydrology, and channel condition and dynamics, each administrative unit shall apply the following measures when implementing the pertinent standards and guidelines for road construction and decommissioning as described in the LRMPs and RMPs.
 - a. New roads (temporary, semi-permanent, or permanent) in riparian reserves shall be minimized to the greatest extent possible, and shall be constructed only where watershed analyses have been completed to document that the roads would not prevent attainment of ACS objectives.
 - b. Construction of new permanent and semi-permanent roads shall be limited to stable areas or ridgetops. Permanent roads are those that are used after the end of the contract, and semi-permanent roads are those that are used for longer than one dry season but are decommissioned at the end of the contract.
 - c. Semi-permanent roads shall be decommissioned within one year after completion of timber sale activities associated with the harvest units they were built to access. The definition of “decommissioning” for this purpose includes those measures necessary to restore pre-road hydrologic functions and to minimize the risk of road-related sediment delivery to streams (e.g., culvert removal, decompaction of road surfaces (ripping), outsloping, waterbarring, fill removal, revegetating with native species, and roadway barricading to exclude vehicular traffic).
 - d. When permanent and semi-permanent roads are constructed in key watersheds, road density shall be reduced in the same watershed (20-200 sq mi) by decommissioning roads using the following guidelines:

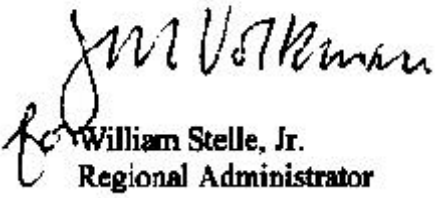
- i. Reduce road density by at least an equivalent mileage of the new road(s). The need for additional reductions in road density may be identified in watershed analysis reports. If watershed analyses are not available, a general guideline to provide a conservative reduction of risk to the listed species would be to decommission twice the length of new road constructed.
 - ii. The appropriate reduction in road density through decommissioning shall be identified prior to or concurrent with construction of new road miles. Decommissioning shall be completed within a reasonable timeframe following construction of the new roads.
- e. When permanent and semi-permanent roads are constructed outside of key watersheds, the effects of new roads on salmonid habitat shall be mitigated using the following guidelines:
 - i. Reduce the density or impact of existing roads in the watershed by at least an equivalent mileage or impact of the new road(s). Opportunities for decommissioning or reducing impacts from existing roads should be identified in watershed analysis reports.
 - ii. Appropriate efforts to mitigate new road impacts by reducing existing road density or impacts shall be identified prior to or concurrent with construction of new road miles. Decommissioning or other mitigation measures shall be completed within a reasonable timeframe following construction of the new roads.
- f. Temporary roads shall be installed and decommissioned during the dry season of the same year (usually May 15 to October 15). Temporary roads will be decommissioned per the above definition.

Reinitiation of Consultation

Reinitiation of consultation is required if: (1) the amount or extent of taking specified in the incidental take statement, above, is exceeded, (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this biological opinion; (3) new information or project monitoring reveals effects of the action that may affect listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR § 402.16).

If you have any questions, please contact Michelle Day of my staff at (503) 231-6938.

Sincerely,



William Stelle, Jr.
Regional Administrator

Attachment

1997 Potential Effects of Timber Harvest and Associated Activities on Salmonid Habitat and
Measures to Minimize those Effects

References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the sources of data, information and references used in developing this Conference in addition to that submitted by the USFS and BLM.

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